

FIG. 1

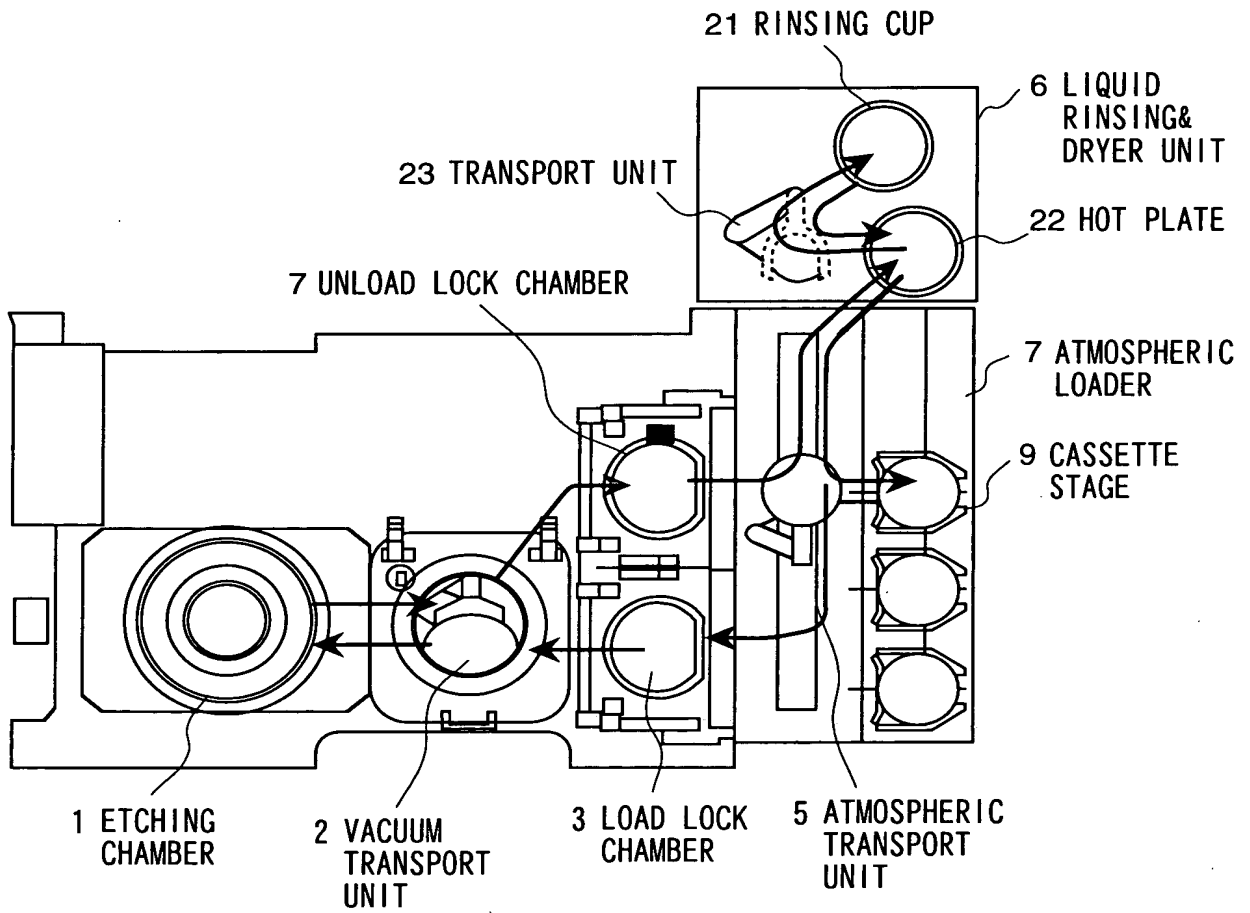


FIG.2

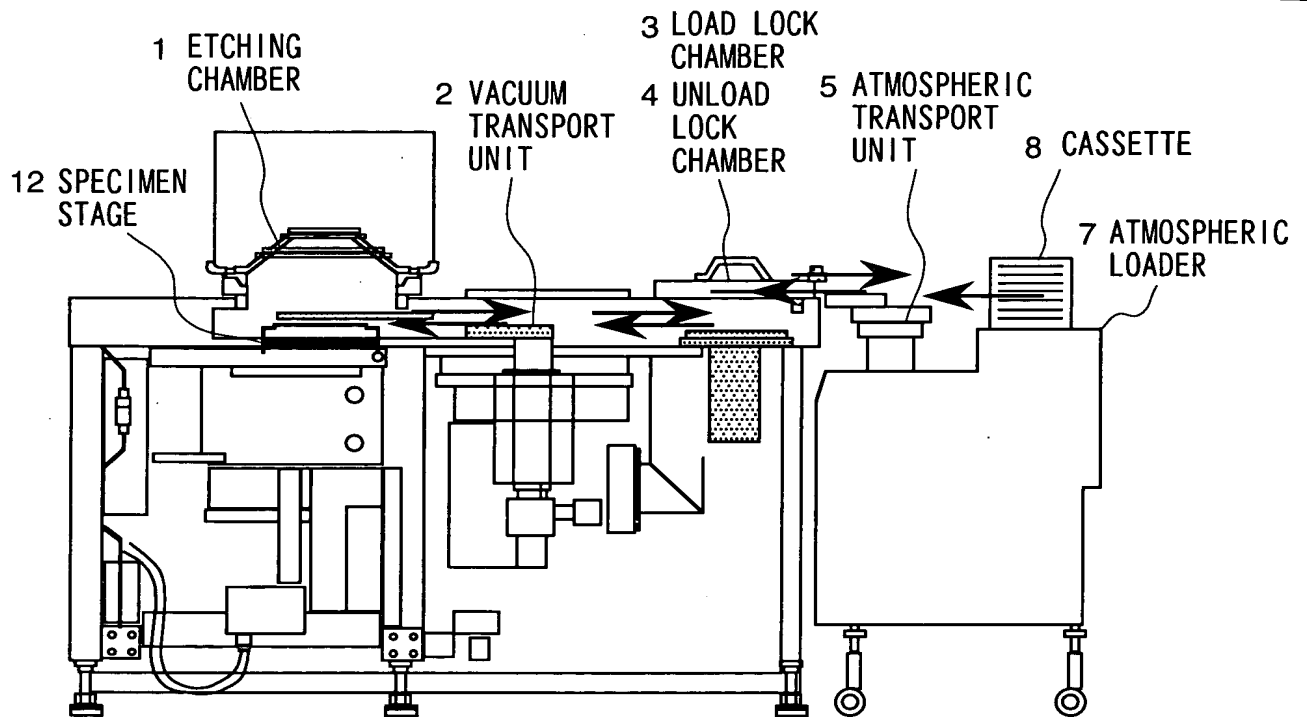


FIG.3

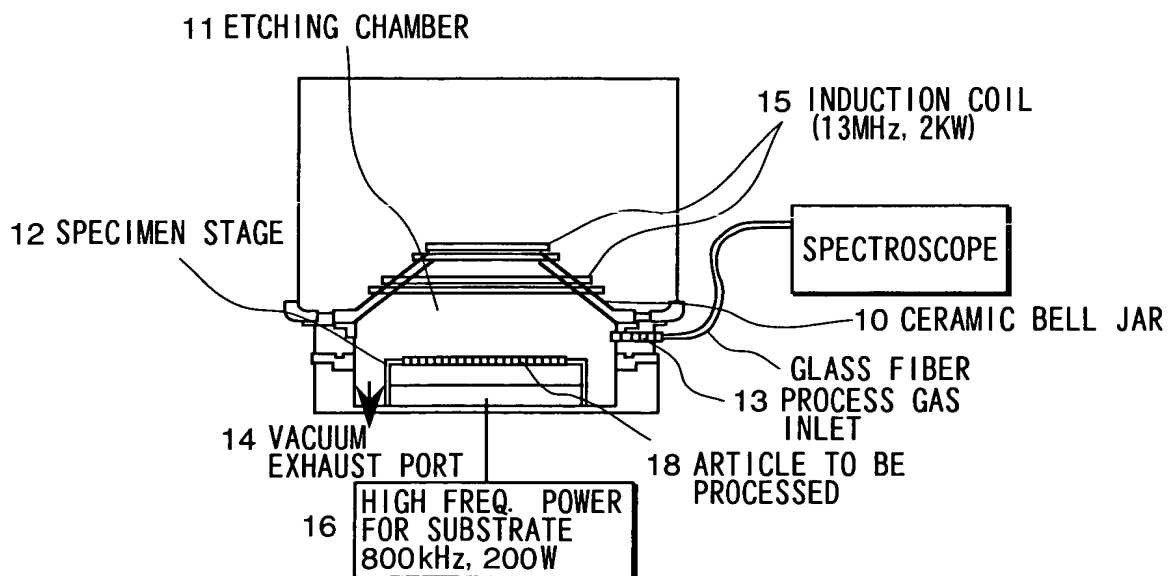


FIG.4

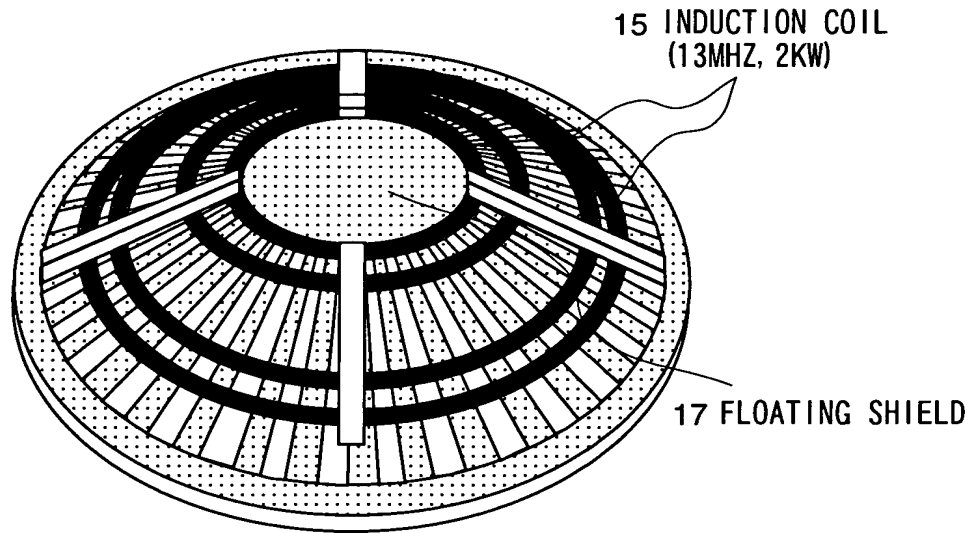


FIG.5

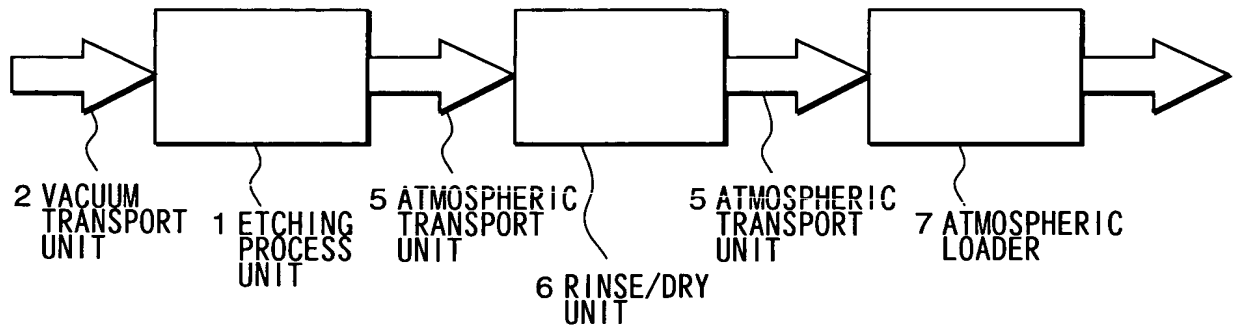


FIG.6

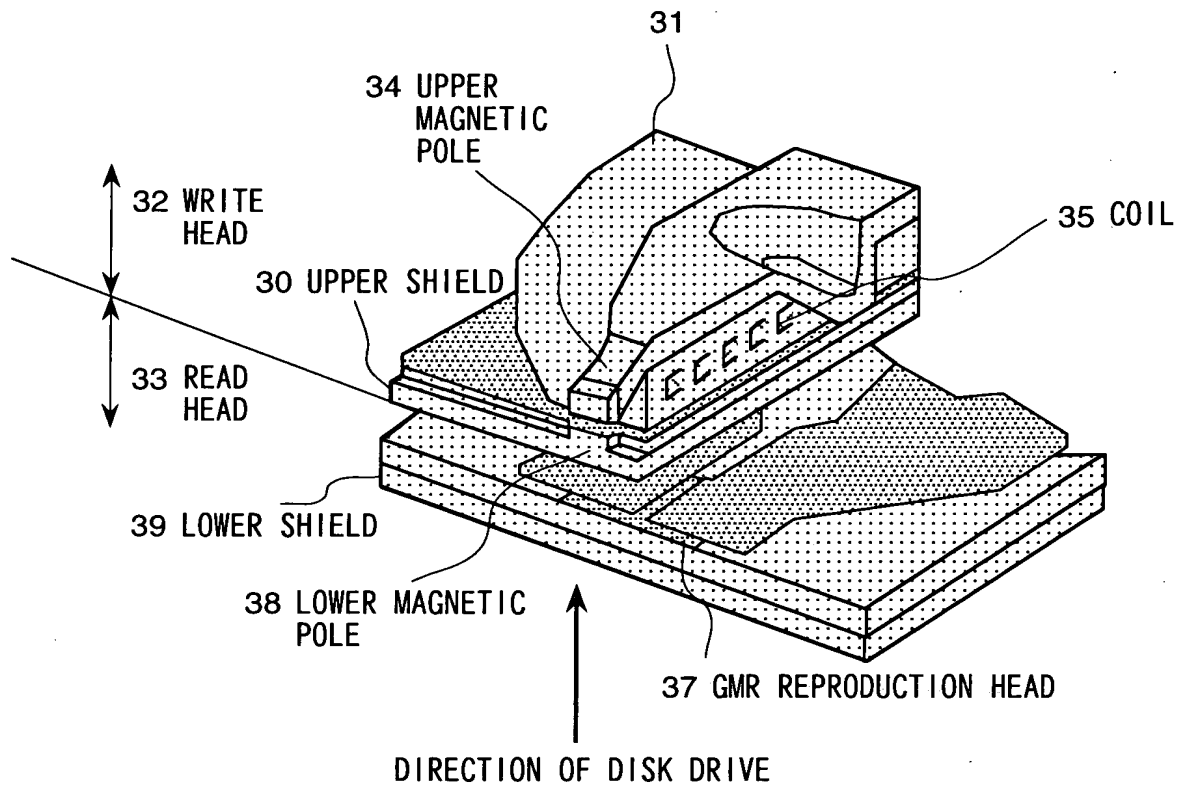


FIG. 7

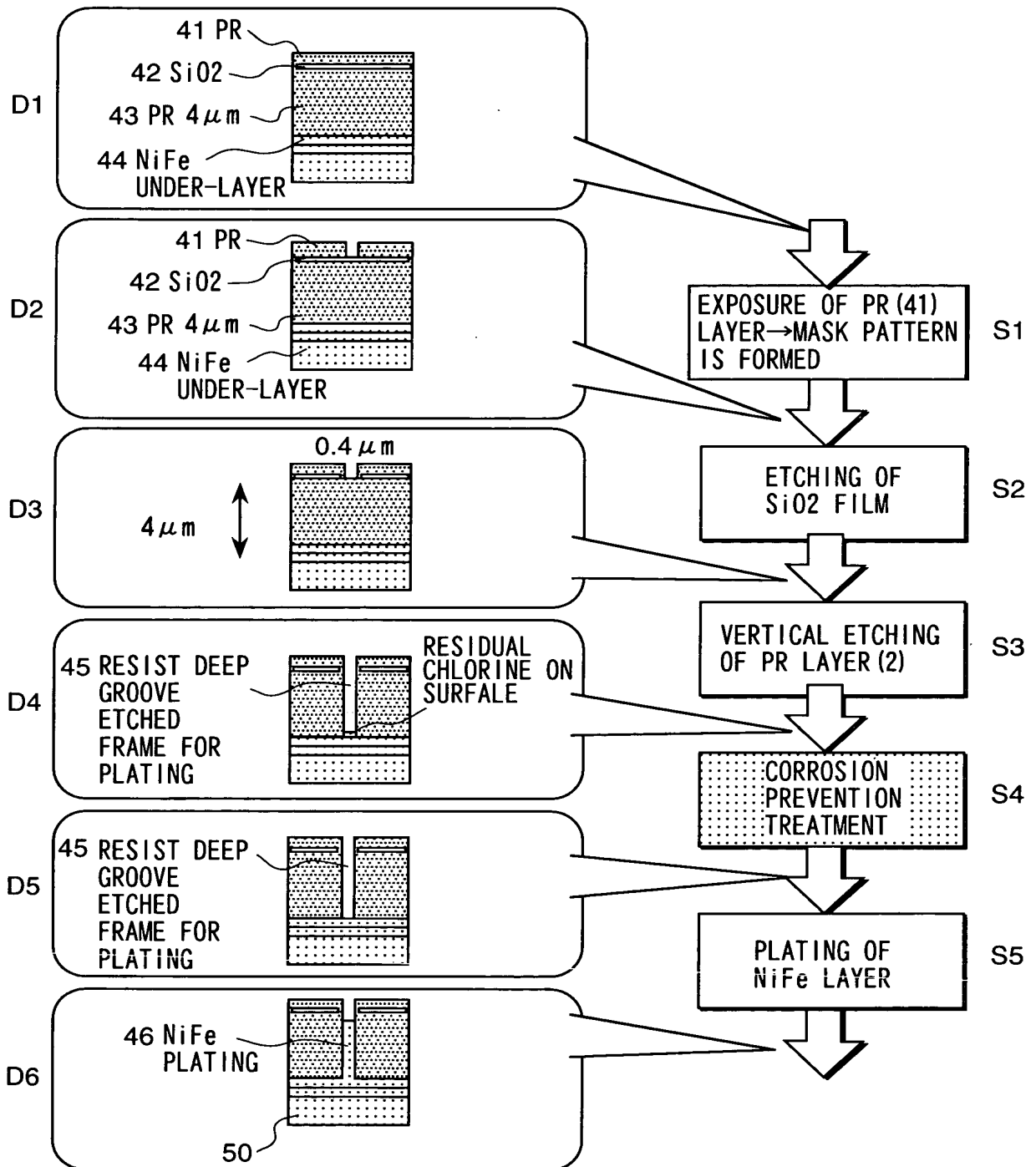


FIG.8

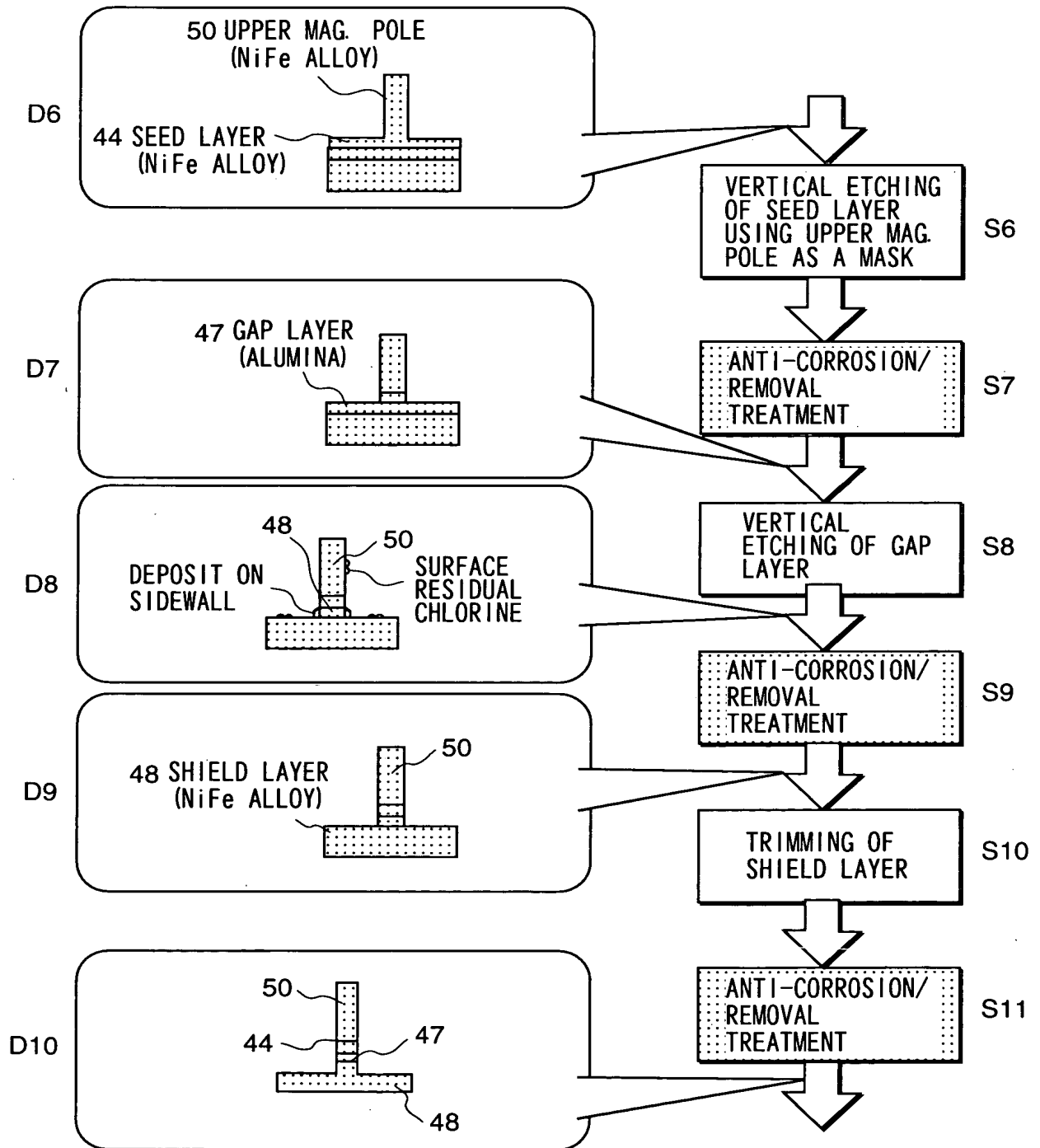


FIG. 9

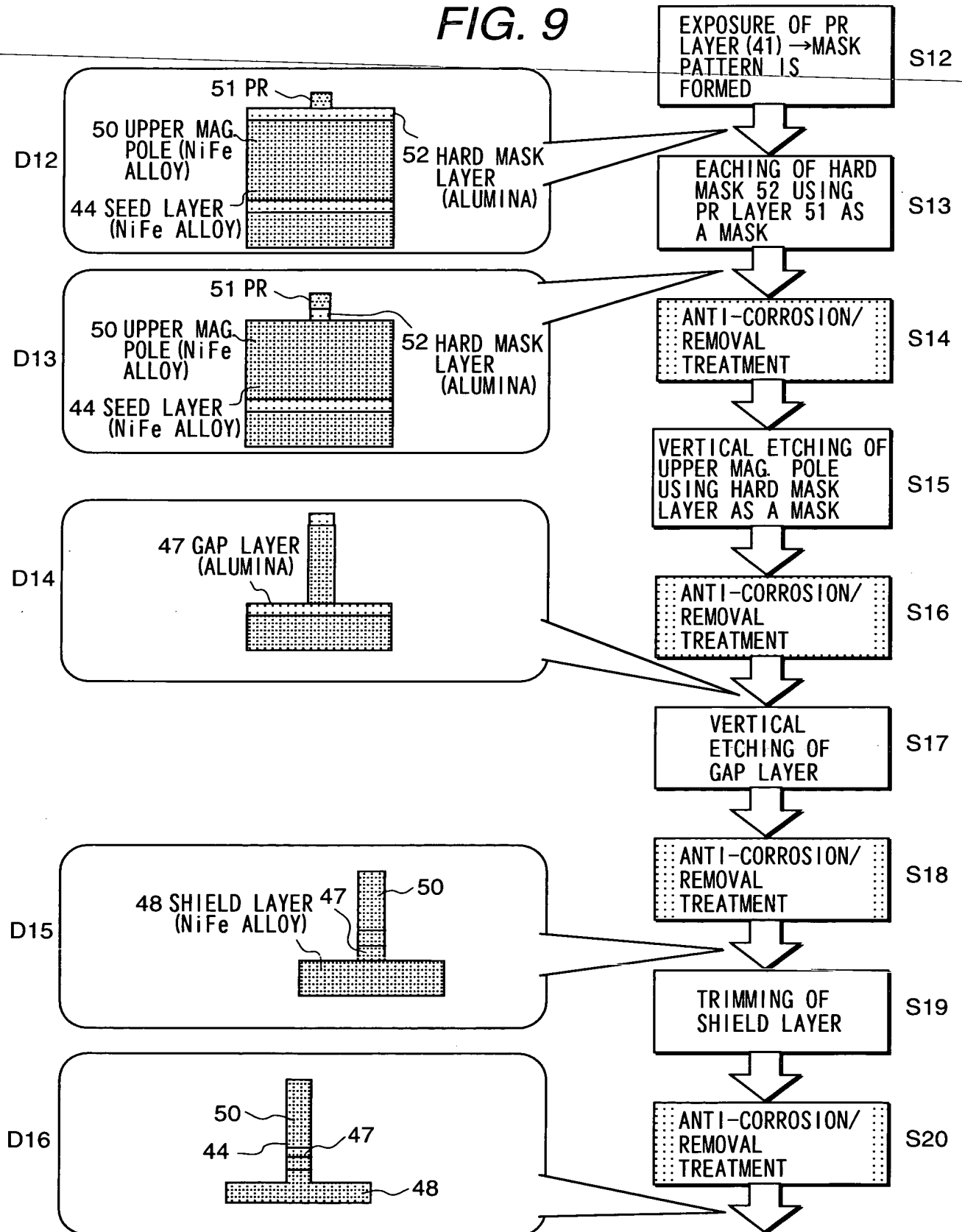


FIG.10

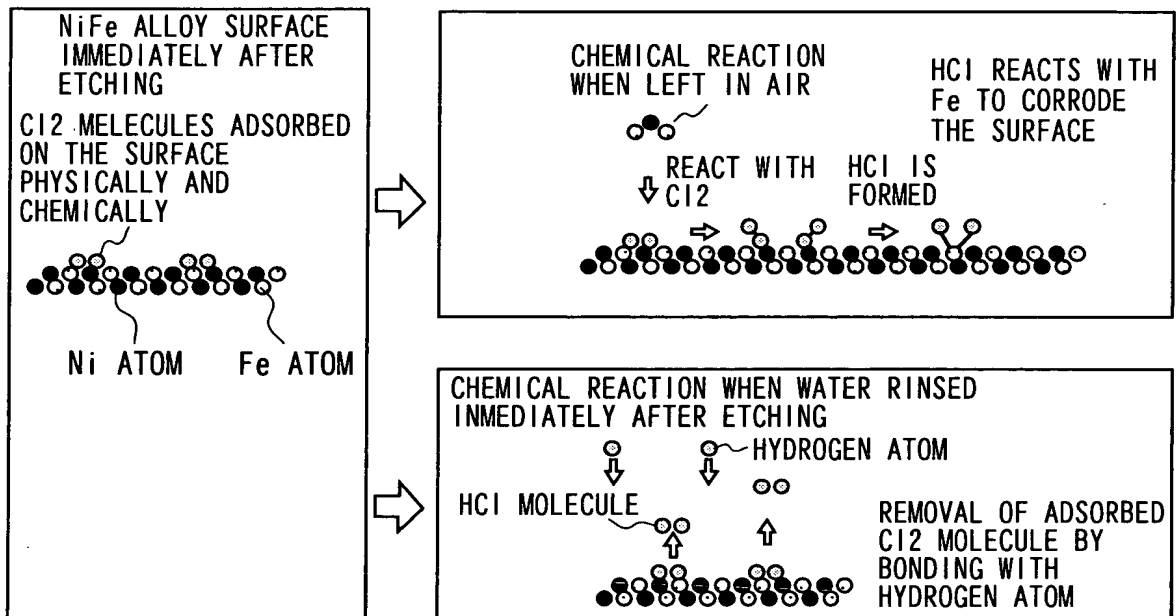


FIG.12

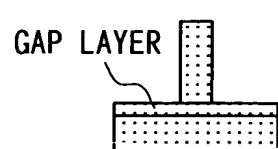
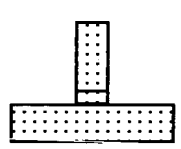
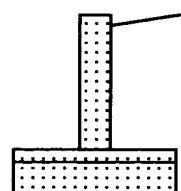
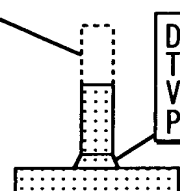
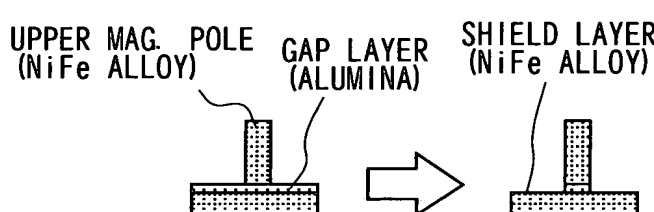
	BEFOR ETCHING	AFTER ETCHING
PLASMA ETCHING	 <p>GAP LAYER</p>	
MILLING	 <p>A LONGER INITIAL LENGTH OF UPPER MAGNETIC POLE NECESSIATED DUE TO LOW SELECTIMITY RATIO → DIFFICULT TO OBTAIN PRECISE SIZE CONTROL</p>	 <p>DIFFICULT TO OBTAIN VERTICAL PATTERN</p>

FIG.11

EXPERIMENTAL CONDITIONS*	TIME UNTIL CORROSION OCCURS
LEFT IN AIR AFTER ETCHING OF GAP LAYER	5 MIN.
LEFT IN AIR AFTER PURE WATER RINSING/DRYING WITHIN 2 MIN. AFTER ETCHING OF GAP LAYER	AFTER MORE THAN 2 WEEKS

ITEM	UNIT	RESULT
RATE	nm/min	108.5

*OTHER CONDITIONS

ITEM	CONDITIONS
DEVICE STRUCTURES PRIOR TO & AFTER ETCHING	 <p>UPPER MAG. POLE (NiFe ALLOY) GAP LAYER (ALUMINA) SHIELD LAYER (NiFe ALLOY)</p>
GAS	Cl 20sccm+BCl3 30sccm
PRESSURE	0.3Pa
STAGE TEMP.	40°C
SOURCE RF POWER	750W
SOURCE RF FREQ.	13.56MHz
BIAS RF POWER	60W
BIAS RF FREQ.	800KHz